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20 September 2011

The Right Hon. David Cameron PC MP
10 Downing Street
London

Dear Prime Minister,

The future of the MATHEMATICAL SCIENCES in the UK

We wish to approach you following recent developments at the Engineering and Physical Sciences Council which are likely to cause irreversible damage to the mathematical sciences in Britain.

The issue here is *not* cuts, but how to make the most effective use of limited science resources.

EPSRC's model is one of central planning and micro-managing research. Civil servants in an unaccountable quango are picking winners, deciding which science to fund based on their perception of strategic priorities. They call it Shaping Capability.

In July 2011 they decided to stop funding research fellowships in all areas of the mathematical sciences other than statistics and applied probability. This will force many of our best PhD students to leave the country to get their first academic job, and will prevent us from attracting the best foreign postdoctoral researchers. Postdoctoral fellowships are an essential part of the pipeline that allows some PhDs to become leading scientists. If EPSRC continues this policy, British mathematics will face mediocrity in a decade.

Mathematics is a bedrock on which reside science, engineering and technology, finance and economics, the study of weather and the environment, and much of the modern economy. As any subject becomes better understood, it becomes more quantitative, so that the role of mathematics becomes more important. Businesses in the fastest growing sectors, from Google to medical imaging to financial services, are desperate to employ mathematicians. As technology advances, mathematics will become yet more important to our economy.

It is foolhardy to claim that one part of mathematics is the only useful one. Business applications of mathematics often come from the most surprising and unpredictable sources. Internet security and bank transactions depend on a wide range of mathematics including number theory. Mobile phones rely on mathematical analysis, combinatorial algorithms and statistics as well as on electrical engineering.

Unfortunately, this is a trend that the bureaucrats at EPSRC have not spotted, partly because they refuse to consult mathematicians. The damage to the UK in running down what is now a superb mathematics community (containing for instance six winners of the Fields medal – the maths Nobel prize) will be heavy.

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UK mathematics is under-resourced already. In 2009/10, EPSRC slashed its funding of research grants in the mathematical sciences (the other main type of research funding besides fellowships) to 12 million, from 24.2 million only two years before. The UK's competitors would find that decision hard to understand. The US is increasing its research grants in the mathematical sciences despite the recession, because of the prospect of long-term growth founded on research. The UK's small investment in mathematics must be used wisely.

Instead, EPSRC decided to scrap fellowships in most of the mathematical sciences without any meaningful consultation with the UK mathematics community. The decision does not reflect any analysis, carries no explanation and is little more than a bureaucratic fiat. It disregards in letter and in spirit the 2010 International Review of Mathematical Sciences in the UK – commissioned by EPSRC itself – which expressed concern that an “excessive EPSRC top-down direction of research restricts innovation”.

Under pressure, EPSRC is now considering whether it might fund fellowships in some other topics of its choosing at some later date. One may question how reassuring this is. If EPSRC does not immediately restore fellowships in all the mathematical sciences, this year's best young mathematicians will be lost to the UK. Our foreign competitors do not hesitate to hire the top UK talent.

Given the refusal of EPSRC and its Chief Executive to engage seriously and meaningfully with UK mathematicians and their representatives, we are compelled to approach you, Prime Minister, as a last resort, asking you to reverse this EPSRC policy and instruct EPSRC to act to the long-term benefit of UK mathematics, in a dialogue with UK mathematicians.

Yours sincerely,

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Honorary Professor, University of Edinburgh; Fields Medallist, Abel Prize winner, President of the Royal Society 1990–1995

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The Rt Hon. Carwyn Jones AM, First Minister of Wales
The Rt Hon. Ed Miliband MP, Leader of the Opposition
The Rt Hon. Nick Clegg MP, Deputy Prime Minister
The Rt Hon. Owen Paterson MP, Secretary of State for Northern Ireland
The Rt Hon. David Willetts MP, Minister of State for Universities and Science
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The Hon. Gregg McClymont MP, Science and Technology Committee
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